Recycle Line Recovers Gas During Condensate Loading

NaturalGas EPA POLLUTION PREVENTER

Partner Reported Opportunities (PROs) for Reducing Methane Emissions

PRO Fact Sheet No. 503

Applicable sector(s):

☒ Production ☒ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Enron Corporation

Other related PROs: Pipe Glycol Dehydrator to Vapor Recovery Unit, Connect Casing to Vapor Recovery Unit

- Compressors/Engines ☐
- Dehydrators ☐
- Pipelines ☐
- Pneumatics/Controls ☐
- Tanks ☒
- Valves ☐
- Wells ☐
- Other ☐

Technology/Practice Overview

Description

Lease condensate production, when transferred from storage into tank trucks, can generate significant volumes of methane vapor due to pressure and temperature changes and evaporation. This methane is typically vented to the atmosphere to prevent the internal tank pressure from rising.

One partner reported capturing methane that would otherwise be vented by connecting the tank truck vent to the condensate storage tank, or to a vapor recovery line. This has provided the partner with the flexibility to send the methane to a sales line, use the methane for lease fuel, or flare the methane vapors.

Methane Savings: 100 Mcf per year

Costs

Capital Costs (including installation)
☐ <$1,000 ☒ $1,000 – $10,000 ☐ >$10,000

Operating and Maintenance Costs (annual)
☐ <$100 ☒ $100-$1,000 ☐ >$1,000

Payback (Years)
☐ 0–1 ☐ 1–3 ☒ 3–10 ☐ >10

Benefits
Reducing methane emissions was a primary justification for the project.

Operating Requirements

To avoid methane emissions, the low-pressure gas in the natural gas liquids storage tank must be either flared or recovered with a vapor recovery unit.

Applicability

This technology applies to all condensate production operations using tank trucks or railroad tanks.

Methane Emissions Reductions

Methane emissions occur when methane and volatile organic compounds (VOC) flash or evaporate into the air displaced during the loading process. Considering that a loading cycle may occur every 3 to 5 days, approximately 100 loading transfers can occur per year. Using the *Pipeline Rules of Thumb* handbook, Fourth Edition, p. 492, the rate of methane emissions from evaporation can be estimated as 50 percent of the total volume filled. Partners have reported reducing methane emissions by 6,500 Mcf to 39,000 Mcf per year, which includes flashing loses.

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 100 Mcf per year apply to the use of a single vapor recovery line used to recover vapor during truck loading every 3 to 5 days. Flashed gas savings can be estimated from site-specific data using GRI-GLYCalc.

Discussion

To implement this project, operators will need a vapor recovery line and the appropriate connections to attach the line to the tank, a VRU, or flare stack. If the methane is recovered to a sales or fuel line, the partner can largely offset the cost of this project.